

## REMARKS/ARGUMENTS

Claims 8-11 and 14 are pending herein. Claim 8 has been amended to clarify that the claimed mesoporous silica exhibits alkaline resistance as supported by Table 1 of the present application, for example. Pending claim 9 and 11 have been amended for clarification purposes only. New claim 14 has been added hereby, as supported by paragraph [0020] of the present application, for example.

1. Claim 9 was rejected under §112, second paragraph in paragraphs 2 and 3 of the Office Action. This rejection is respectfully traversed.

According to the original specification, a “filmy form” mesoporous silica is obtained by dipping a porous substrate into a Si- and Zr-source containing solution or dispersion. Whenever the porous substrate is not dipped into the Si- and Zr-source containing solution or dispersion, “only particles of mesoporous silica are formed and no mesoporous silica film is formed on the porous substrate” (see, e.g., original specification, page 6, paragraph [0023], lines 15-22). As such, the original specification makes clear that either a “filmy form” or a “particulate form” mesoporous silica can be deposited on a porous substrate.

In view of all of the foregoing, reconsideration and withdrawal of the §112, second paragraph rejection are respectfully requested.

2. Claims 8-11 were rejected under §103(a) over Chaudhari, Karuna et al., *Electron Spin Resonance Investigation on the Location and Reducibility of Zirconium in Mesoporous Zr-MCM-41 Molecular Sieves*, Journal of Physical Chemistry B, Vol. 104, No. 47 (November 2000) in view of U.S. Patent No. 6,274,207 (Balkus Jr., et al.).

To the extent that this rejection might be applied against amended claim 8 (and all claims depending therefrom), it is respectfully traversed.

Pending independent claim 8 recites a mesoporous silica composite material including a mesoporous silica deposited on a porous substrate. Pending claim 8 has been amended to clarify that the mesoporous silica exhibits alkaline resistance. The applied prior art of record, discussed below, fails to disclose or suggest a mesoporous silica exhibiting alkaline resistance, as claimed.

Applicants discovered that a Zr- including mesoporous silica having advantageously good alkaline resistance properties can be obtained when a Si source, a Zr source and a surfactant are initially mixed together, as starting materials, to form a synthesis gel. That is, a structurally distinct Zr- including mesoporous silica (i.e., one having suitable alkaline resistance) is the result when certain starting materials are mixed together in a specific sequence during the formation of the mesoporous silica.

Chaudhari discloses that a surfactant and a Si source are mixed together to form an initial synthesis gel and then a Zr source is subsequently added to Chaudhari's initial synthesis gel mixture, which is thereafter processed to form a Zr-MCM-41 material. Chaudhari does not disclose or suggest that any of the various samples of Zr-MCM-41 shown in Table 1 have alkaline resistance properties, as now claimed.

Applicants respectfully submit that, based on Chaudhari's processing method discussed above, skilled artisans would understand that Chaudhari's Zr-MCM-41 material does not necessarily exhibit alkaline resistance, as claimed. Again, Applicants discovered that a structurally distinct Zr- including mesoporous silica (i.e., one having alkaline resistance properties) is the result when a Si source, a Zr source

and a surfactant are mixed together as starting materials to form a synthesis gel. Since the PTO is relying upon Balkus only for disclosure of a substrate material, even if Chaudhari's Zr-MCM-41 material were formed on the substrate disclosed in Balkus as asserted in the Office Action, there would still be no disclosure or suggestion of a "mesoporous silica exhibiting alkaline resistance," as recited in pending independent claim 8.

In view of the all of the foregoing, reconsideration and withdrawal of the §103(a) rejection over Chaudhari are respectfully requested.

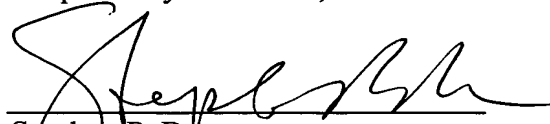
New dependent claim 14 has been added to further distinguish the present invention over Chaudhari. New claim 14 recites that the mesoporous silica is formed by mixing, as starting materials, a solution including a surfactant with at least one of a solution and a dispersion including a Si- and a Zr- source to form a gel which is then processed to produce the mesoporous silica. Again, Applicants discovered that a Zr- including mesoporous silica having advantageously good alkaline resistance properties can be obtained when a Si source, Zr source and a surfactant are initially mixed together as starting materials to form a synthesis gel. As discussed above, Chaudhari discloses using a synthesis gel that includes a Si source and a surfactant, but does not disclose or suggest that a Zr source should be added to the initial synthesis gel mixture. Nor is there any teaching in Chaudhari that would lead skilled artisans to believe that Zr-MCM-41 material would necessarily have alkaline resistance properties when the Zr source is subsequently added to the synthesis gel mixture. Accordingly, new claim 14 provides further patentable distinctions over Chaudhari.

If the Examiner believes that contact with Applicants' attorney would be advantageous toward the disposition of this case, the Examiner is herein requested to call Applicants' attorney at the phone number noted below.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-1446.

20SEP04  
Date

Respectfully submitted,

  
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